



Norman H. Bangertter  
Governor  
Suzanne Dandoy, M.D., M.P.H.  
Executive Director  
Kenneth L. Alkema  
Director

State of Utah  
DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH

288 North 1460 West  
P.O. Box 16690  
Salt Lake City, Utah 84116-0690  
(801) 538-6121

April 5, 1990

RECEIVED  
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DIVISION OF  
OIL, GAS & MINING

Mr. R.J. Ramsey  
Barney's Canyon Mine  
P.O. Box 311  
Bingham Canyon, Utah 84006-0311

Re: B.P. Minerals Cyanide Heap Leach  
Neutralization Plan of Study

Dear Mr. Ramsey:

We have reviewed the plan of study for neutralization that was requested in our construction permit letter dated March 24, 1990. This proposal was prepared by Phillip Lehoux, Chief Metallurgist at the Barney's Canyon Mine and received on September 14, 1989.

Test columns have been prepared for the purposes of simulating effectiveness of neutralization processes.

Prior to neutralization, samples at various depths in the heaped ore will be assayed for cyanide forming species to determine the neutralization agents to be used.

We feel that the proposed plan of study is an effective approach for neutralizing the heaped ore. However, the following additional items should be included in the plan of study:

1. An evaluation of metals that may be leached from the ore body from exposure to low pH water or oxygen sulfide ores should be included in the neutralization study. Sulfidated ores, for example, greatly reduce the pH of water in the ore when oxidized.
2. The time to complete the neutralization process should be determined from the neutralization study. This was not mentioned in the plan of study.
3. End point concentrations after neutralization of free cyanide, total cyanide, and weak acid dissociable cyanide should be included in the plan of study.

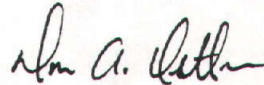
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4. Neutralization of the ore heaps, based on the approved criteria, must be verified in three (3) samples of the heap leach pad rinsate, reasonably spaced during a twenty-four (24) hour period. The procedure must be included in the neutralization plan.

If we can be of further assistance, please contact Kiran Bhayani or Lyle Stott of my staff.

Sincerely,

Utah Water Pollution Control Committee



Don A. Ostler, P.E.  
*Executive Secretary*

LWS:rvg

cc: Mr. Kent Miner, SLC/County Health Department  
Mr. Lowell Braxton, Oil, Gas & Mining

N:BPHLNeut.ltr